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10/003,109	12/06/2001	Kyung-geun Lee	1293.1280	5205

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EXAMINER	
CHU, KIM KWOK	
ART UNIT	**PAPER NUMBER**
2653	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,109	LEE ET AL.	
	Examiner	Art Unit	
	Kim-Kwok CHU	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-14,20-23 and 29-33* is/are rejected.

7)☒ Claim(s) *2-6,15-19 and 24-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/22/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Remarks

1. Applicant's Remarks filed on December 27, 2004 have been fully considered but they are not persuasive.

(a) With respect to the Remarks on the amended claim 1 and its dependent claims 10, 12 and 13, Applicant states that the prior art of Morimoto does not teach the amended claimed "a header area in which header information is recorded as a multi-modulated signal" (page 10 of the Remarks, lines 11-15). Accordingly, the prior art of Morimoto in Figure 1 teaches that a header area 32 and 34 having groove header and land header information. The header information 32 is modulated to a depth of $3\lambda/8$ and the header information 34 is modulated to a depth of $\lambda/8$ (Fig. 2A and 2B). Since the header information has two different physical formats, it is a multi-modulated signal.

(b) On the other hand, any recorded signal in a header area can be considered as a multi-modulated signal because the signal is digitally modulated first (for example, analog to digital and then eight to fourteen modulation) and then additional modulation such as phase, frequency, amplitude or intensity etc. is superimposed on the digital modulated signal. And as a result, the recorded signal is coded with at least two different modulations.

(c) With respect to the Remarks on the claim 11, Applicant does not agree that the prior art of Morimoto teach "header has a

higher recording density" (page 10 of the Remarks, lines 18-23). Accordingly, a wobbling track of certain meandering frequency includes a header region. The header region contains header information which is recorded in wobbling format on top of the wobbling track (Fig. 8 of Morimoto), therefore the header information has a higher recording frequency (meandering frequency) than a signal recorded in a wobbling track.

(d) With respect to the Remarks on the claims 14, 20 and 22, Applicant states that the prior art of Morimoto does not teach the claimed "generating a multi-modulated header signal corresponding to the header information" (page 10 of the Remarks, lines 24 and 25). Accordingly, the prior art of Morimoto teaches that the header information 32, 34 is generated (written/recorded) by two forms of modulation. The header information 32 is modulated to a depth of $3\lambda/8$ and the header information 34 is modulated to a depth of $\lambda/8$ (Fig. 2A and 2B).

(e) With respect to the Remarks on the claim 23, Applicant states that the prior art of Morimoto does not teach the claimed "multi-modulator multi-modulating header information to generate a header signal" (page 11 of the Remarks, lines 2-5). Accordingly, the prior art of Morimoto teaches multi-modulator multi-modulating header information because the header information has two different shapes/depths as illustrated in Figs. 2A, 2B and 7.

Furthermore, Fig. 10 teaches two intensity modulators 124a and 124b.

(f) With respect to the Remarks on the claims 29, 31 and 33, Applicant states that the prior art of Nakane's PID1-PID4 are not examples of demodulating multi-modulated header (page 11 of the Remarks, lines 7-15). Accordingly, Nakane's header information as shown in Fig. 11 includes waveforms VF01, VF02 and AM which are reproduced with different demodulation devices such as digital to analog converter, address demodulator, header area demodulator and header polarity demodulator etc. Therefore, the header information PID1-PID4 is a multi-modulated signal reproduced/detected by the prior art of Nakane's optical information reproducing method.

(g) The previous allowed Claims 30 and 32 are now rejected based on the reasoning that a typical header information is a multi-modulated signal.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless -*
> *(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.*

3. Claims 1, 10-14 and 20-22 are rejected under 35 U.S.C. § 102(e) as being anticipated by Morimoto (U.S. Patent 6,226,257).

Morimoto teaches an optical recording medium having all of the elements and means as recited in claims 1 and 10-13. For example, Morimoto teaches the following:

(a) as in claim 1, a wobbled track 70, 72 on which user data is recorded (Fig. 7; user data is recorded in areas 84 and 86);

(b) as in claim 1, a header area 74, 76 in which header information 36, 38 is recorded as a multi-modulated signal (Figs. 2A, 2B and 7; column 5, lines 60-67);

(c) as in claim 10, the wobble track 70, 72 is a wobble signal having a single frequency (Fig. 7; a wobble track contains a sync signal);

(d) as in claim 11, the header signal has a frequency higher than the single frequency of the wobble signal (Fig. 7; inherent feature where header has a higher recording density);

(e) as in claim 12, the wobbled track 70 and the header 80 area are positioned alternately (Fig. 7); and

(f) as in claim 13, the wobbled track comprises a user data area to record user data and includes land 72 and groove 70 tracks.

4. Method claims 14, 20, 21 and 22 are drawn to the method of using the corresponding apparatus claimed in claims 1, 10, 11 and 12. Therefore method claims 14, 20, 21 and 22 correspond to apparatus claims 1, 10, 11 and 12 are rejected for the same reasons of anticipation as used above.

5. Claim 23 is rejected under 35 U.S.C. § 102(e) as being anticipated by Morimoto (U.S. Patent 6,226,257).

Morimoto teaches an optical recording medium having all of the elements and means as recited in claims 23. For example, Morimoto teaches the following:

(a) as in claim 23, a header signal 80, 82 in a header area 74, 76 on an optical recording medium on which a wobble signal is recorded (Fig. 7);

(b) as in claim 23, a multi-modulator multi-modulating header information to generate a header signal (Fig. 7; column 1, lines 59-62); and

(c) as in claim 23, a recording unit 129 to record the generated header signal (Fig. 10).

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless -*
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

7. Claims 29-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nakane et al. (U.S. Patent 5,933,410).

Nakane et al. teaches a method of reproducing header information from a header area on an optical recording medium on which a wobble signal is recorded having all of the steps as recited in claims 29. For example, Nakane teaches the following:

(a) as in claim 29, reading a header signal 133 having multi-modulated header information (Figs. 9 and 11; column 24, lines 47-50; multi-modulated header information includes PID1 to PID4);

(b) as in claim 29, demodulating at least some intervals of the read header signal according to a first type of demodulation to obtain first header information (Figs. 10 and 11; positive envelope demodulation);

(c) as in claim 29, demodulating the intervals of the read header signal according to a second type of demodulation to obtain second header information (Figs. 10 and 11; negative envelope demodulation); and

(d) as in claim 29, combining the demodulated first and second header information, respectively, to output the combined header information (Figs. 10 and 11; column 25, lines 19-31).

9. Claim 30 has limitations similar to those treated in the above rejection, and is met by the reference as discussed above.

10. Claim 31 has limitations similar to those treated in the above rejection, and is met by the reference as discussed above. Claim 31 however also recites the following limitation which is also taught by the prior art of Nakane:

(a) as in claim 31, a header information synthesizer to combine the first and second header information and to output the combined header information (Figs. 10 and 11; column 25, lines 19-31; detector 133 synthesizes an output track polarity signal).

11. Claim 32 has limitations similar to those treated in the above rejection, and is met by the reference as discussed above. Claim 32 however also recites the following limitation which is also taught by the prior art of Nakane:

(a) as in claim 32, a third demodulator demodulating the intervals according to a third type of demodulation to obtain third head information (Figs. 10 and 11; digital signal in form of 0/1 is demodulated); and

(b) as in claim 32, the third head information is synthesizes/combines the first and second header information (Figs. 10 and 11; header signal in form of VFO, AM and digital is demodulated/reproduced to its original forms).

12. Apparatus claim 33 is drawn to the apparatus corresponding to the method of using same as claimed in claim 29. Therefore apparatus claim 33 correspond to method claim 29, and is rejected for the same reasons of anticipation as used above. Claim 33 however also recites the following limitation which is also taught by the prior art of Nakane:

(a) as in claim 33, a header information synthesizer to combine the first and second header information and to output the combined header information (Figs. 10 and 11; column 25, lines 19-31; detector 133 synthesizes an output track polarity signal).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

14. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto (U.S. Patent 6,226,257) in view of Nagasawa et al. (U.S. Patent 5,754,506).

Morimoto teaches an optical recording medium very similar to the instant invention. However, Morimoto does not teach the following:

(a) as in claim 7, the header area comprises a header flag region including a flag signal to indicate a beginning of the header area positioned between adjacent wobbled tracks;

(b) as in claim 8, the flag signal comprises a direct current signal is recorded in the header flag region; and

(c) as in claim 9, the flag signal in the header flag region is a mirror region.

Nagasawa teaches the following:

(a) the header area comprises a header flag region including a flag signal 32 to indicate a beginning of the header area positioned between adjacent wobbled tracks (Fig. 8A; column 18, lines 40-45);

(b) the flag signal 32 comprises a direct current signal is recorded in the header flag region (a flag signal is a bit such as 1 or 0 which is a direct current signal); and

(c) the flag signal in the header flag region is a mirror region (Fig. 8A; header region is a mirror region where light can be reflected).

To read the address bit, it would have been obvious to one of ordinary skill in the art to include a header flag such as Nagasawa's in a header region such as Morimoto's, because the header flag indicates whether the header is a connecting point during a tracking access.

Allowable Subject Matter

15. Claims 2-6, 15-19 and 24-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 2, the prior art of record fails to teach or fairly suggest that the multi-modulated header information comprises first and second header information modulated according to a first type and a second type of modulation, respectively, and which overlap each other in at least some intervals of the header signal.

As in claim 4, the prior art of record fails to teach or fairly suggest that the multi-modulated header information comprises first through third header information modulated according to first through third types of modulation and which overlap one another in at least some intervals of the header signal.

As in claim 6, the prior art of record fails to teach or fairly suggest that the first through N-th header information modulated according to first through N-th types of modulation,

respectively, overlap one another in at least some intervals of the header signal.

As in claim 15, the prior art of record fails to teach or fairly suggest that the header signal having at least some intervals where first and second header information modulated according to a first type and a second type of modulation, respectively, overlap each other.

As in claim 17, the prior art of record fails to teach or fairly suggest that the header signal having at least some intervals where first through third header information modulated according to first through third types of modulation, respectively, overlap one another.

As in claim 24, the prior art of record fails to teach or fairly suggest that the multi-modulator generates the header signal including at least some intervals where first and second header information modulated according to a first type and a second type of modulation, respectively, overlap each other.

As in claim 25, the prior art of record fails to teach or fairly suggest that a first modulator to modulate a first header information according to a first type of modulation; a second modulator to modulate a second header information according to a second type of modulation, and a signal synthesizer to overlap signals output from the first and second modulators in at least some intervals of the modulated header signals.

As in claim 27, the prior art of record fails to teach or fairly suggest that a first modulator to modulate a first header information according to a first type of modulation; a second modulator to modulate a second header information according to a second type of modulation, a third modulator to modulate a third header information according to a third type of modulation; and a signal synthesizer to overlap signals output from the first through third modulators in at least some intervals of the modulated header signals.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hino et al. (6,252,845) is pertinent because Hino teaches a header region in an optical disk.

Van Den Enden et al. (6,167,012) is pertinent because Van Den Enden teaches a header region in an optical disk.

Oohata et al. (6,097,684) is pertinent because Oohata teaches a header demodulating circuit.

18. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Or faxed to:

(703) 872-9306 (for formal communications intended for entry. Or:

(571) 273-7585, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Any inquiry of a general nature or relating to the status of this application should be directed USPTO Contact Center (703) 308-4357; Electronic Business Center (703) 305-3028.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

Kim-Kwok CHU

KC 5/4/05

Examiner AU2653
May 4, 2005

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